Graphics Verification
Feb 04 Results

Measures Used

2 x 2 Contingency Table

Observations \ Forecasts			
	A	B	C = A +B
	D	E	F = D + E
	G = A + D	H = B + E	I = C + F

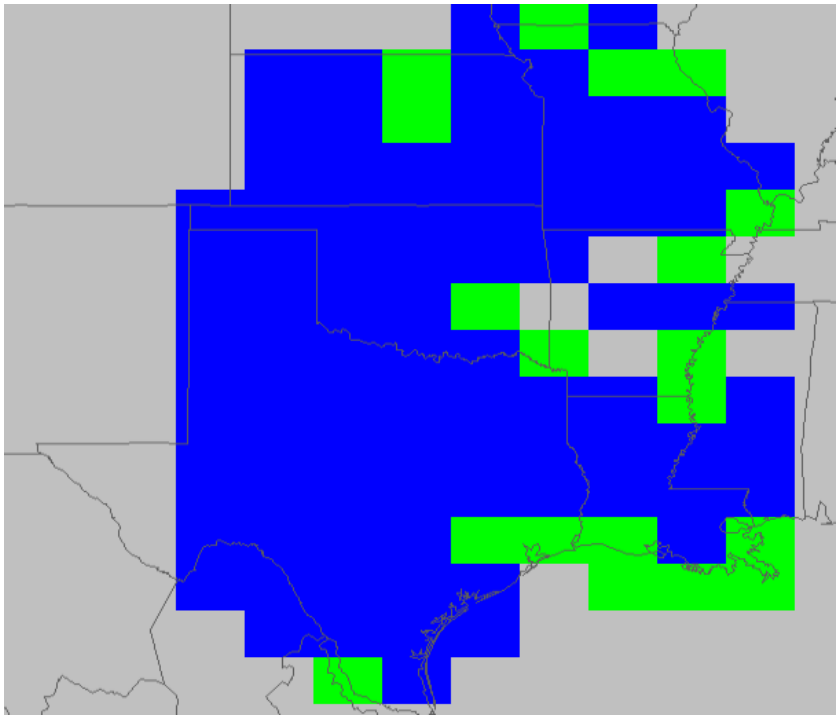
- **Chi-Square** – used to test for statistical significance. Answers the question, “Do we have a large enough sample to know our results are conclusive?”.
- **Heidke Skill Score** – used to test whether we are beating persistence or climatology.
- **Bias** – used to determine whether we are over-forecasting or under-forecasting.

HWD Results

Period: 01-29 Feb 04

HWD 12 Hr Forecast

HEIDKE SKILL SCORE



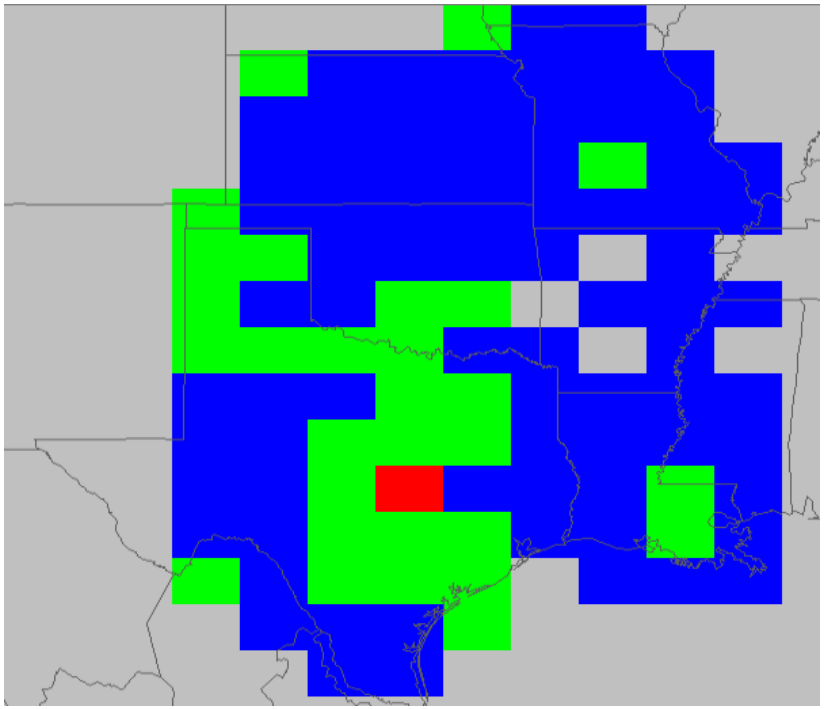
Strong Skill (hss>.5)

Weak to Moderate Skill (0<hss<.5)

No Skill (hss< 0)

Insufficient Data

BIAS



Over-Forecast (bias>1.2)

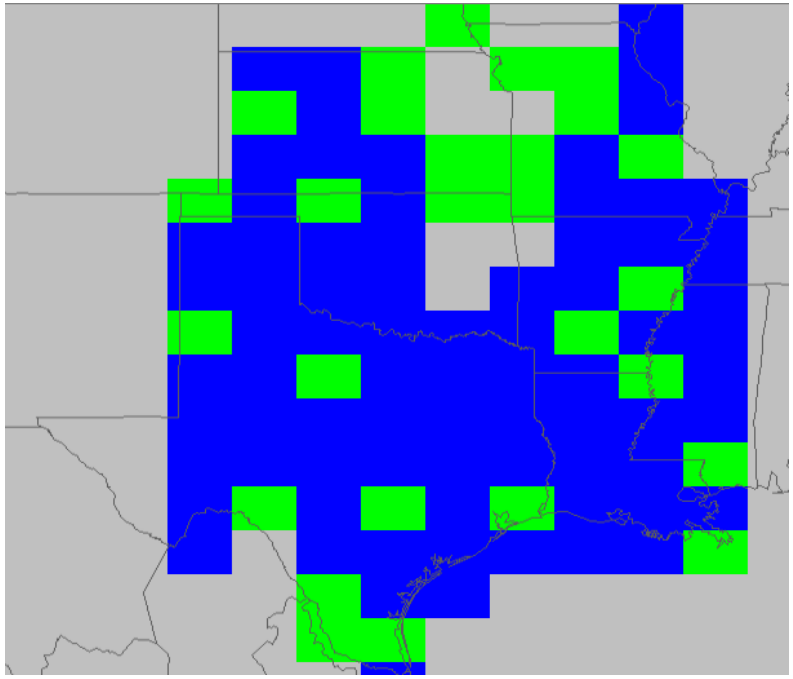
No Significant Bias (.8<bias<1.2)

Under-Forecast (bias< .8)

Insufficient Data

HWD 24 Hr Forecast

HEIDKE SKILL SCORE



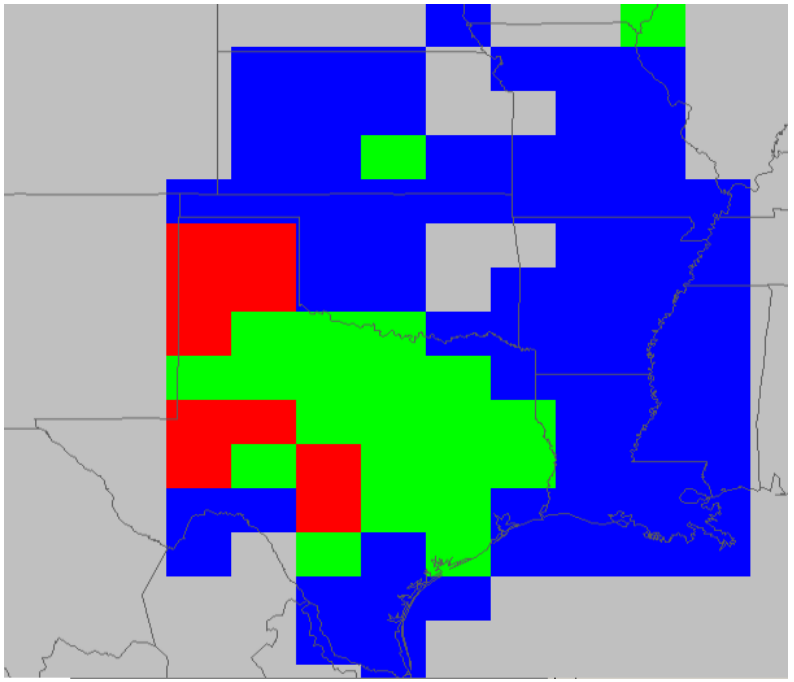
Strong Skill (hss>.5)

Weak to Moderate Skill (0<hss<.5)

No Skill (hss< 0)

Insufficient Data

BIAS



Over-Forecast (bias>1.2)

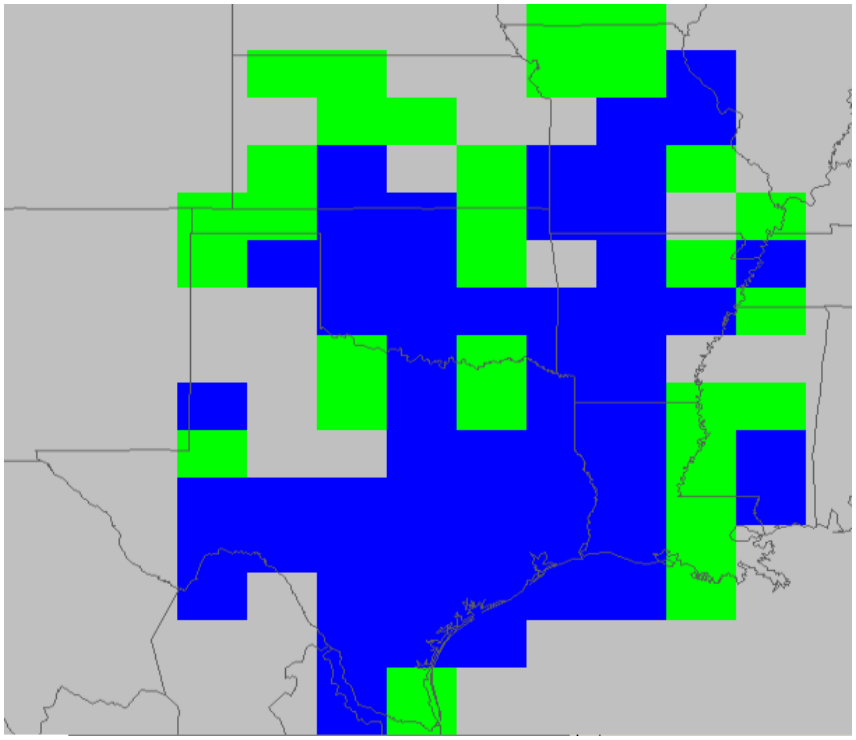
No Significant Bias (.8<bias<1.2)

Under-Forecast (bias< .8)

Insufficient Data

HWD 48 Hr Forecast

HEIDKE SKILL SCORE



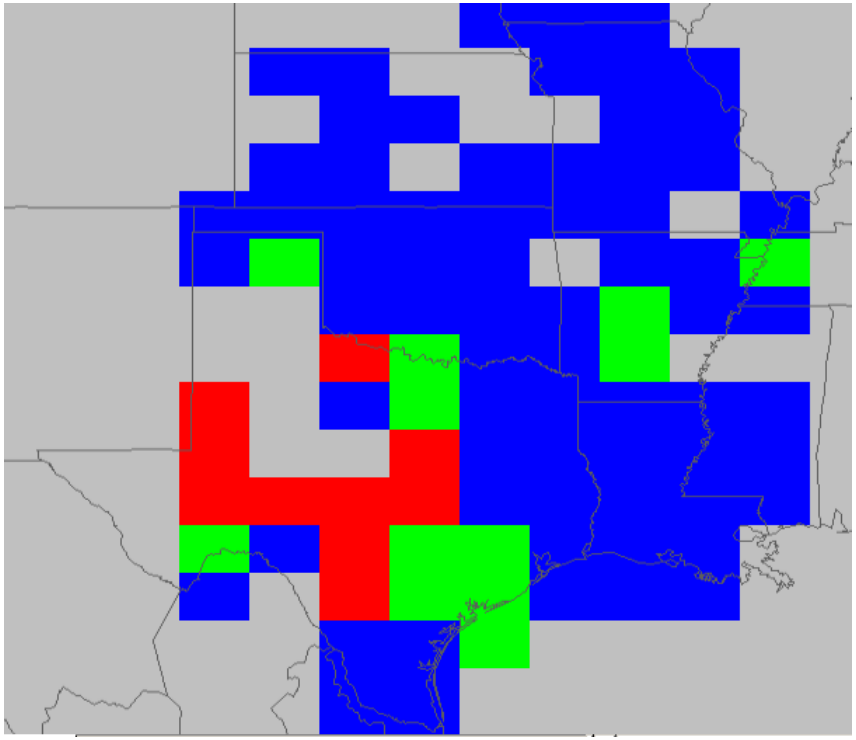
Strong Skill (hss>.5)

Weak to Moderate Skill (0<hss<.5)

No Skill (hss< 0)

Insufficient Data

BIAS



Over-Forecast (bias>1.2)

No Significant Bias (.8<bias<1.2)

Under-Forecast (bias< .8)

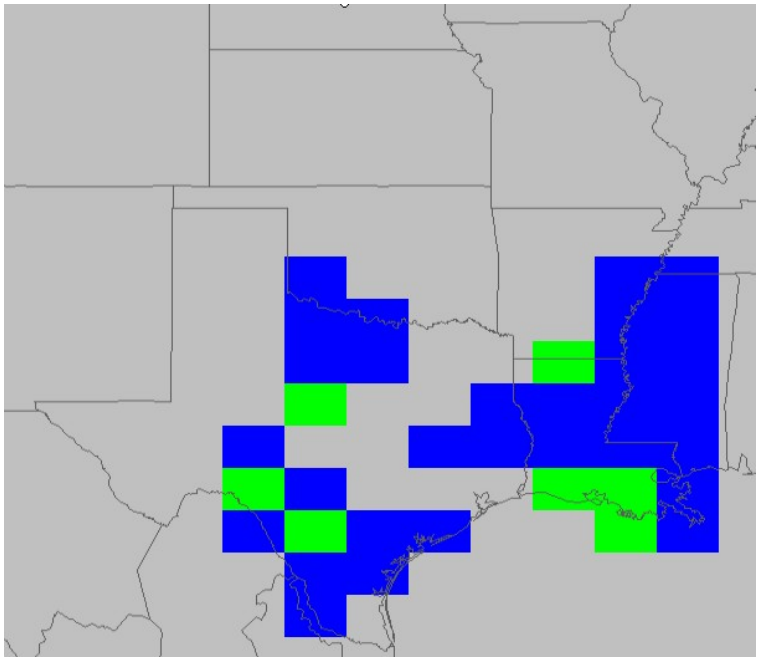
Insufficient Data

Thunderstorm Results

Period: 01-29 Feb 04

TSTMS 12 Hr Forecast

HEIDKE SKILL SCORE



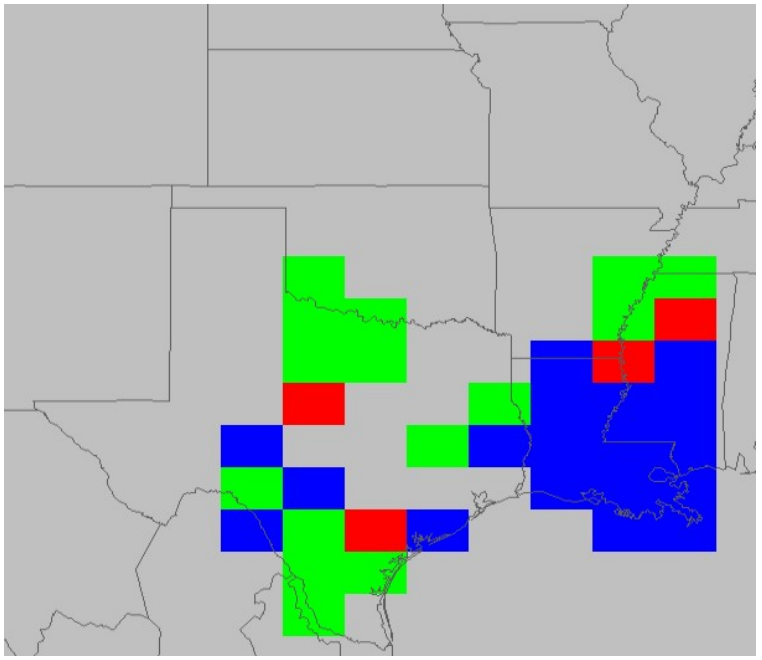
Strong Skill (hss>.5)

Weak to Moderate Skill (0<hss<.5)

No Skill (hss< 0)

Insufficient Data

BIAS



Over-Forecast (bias>1.2)

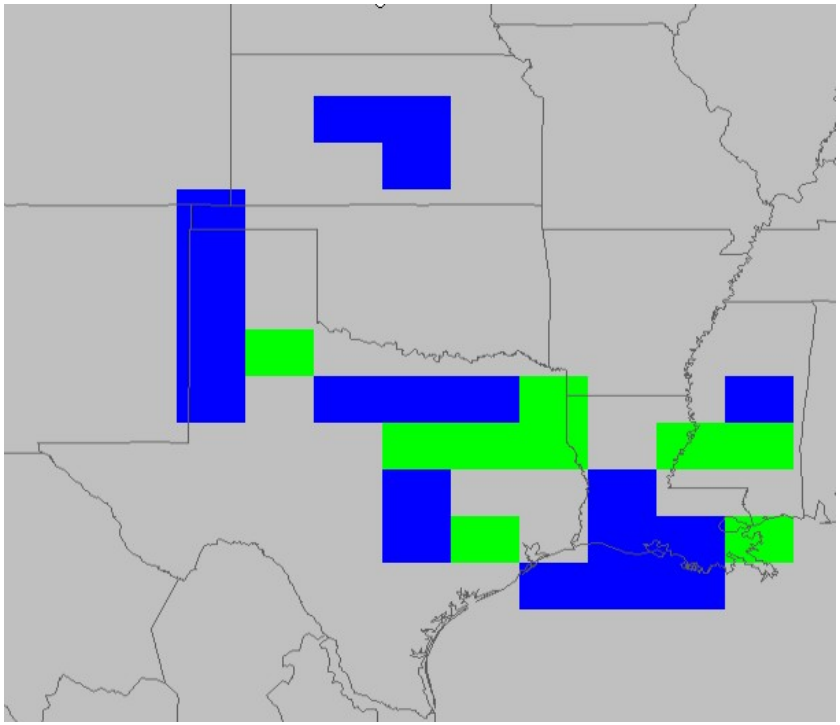
No Significant Bias (.8<bias<1.2)

Under-Forecast (bias< .8)

Insufficient Data

TSTMS 24 Hr Forecast

HEIDKE SKILL SCORE



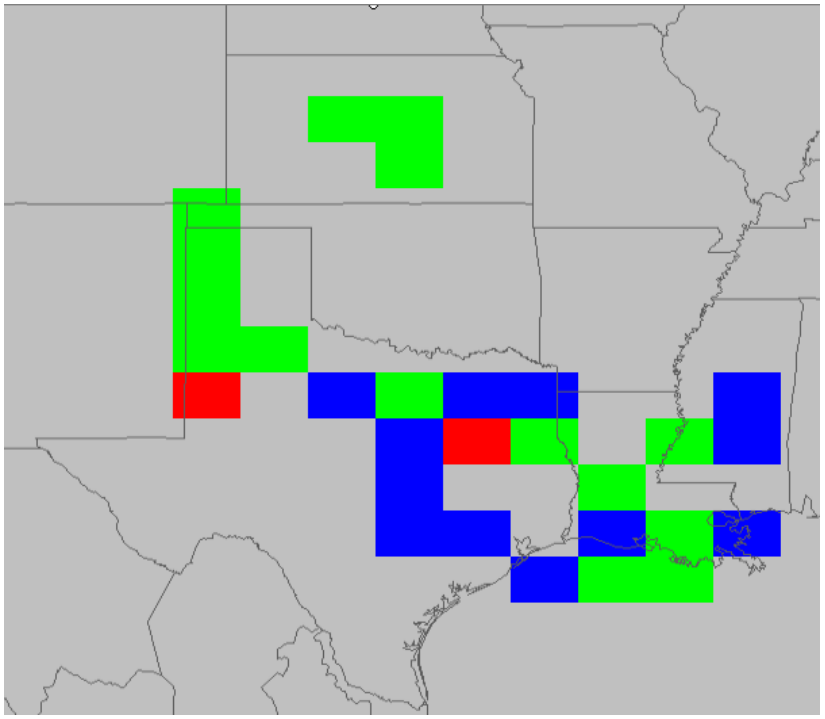
Strong Skill (hss>.5)

Weak to Moderate Skill (0<hss<.5)

No Skill (hss< 0)

Insufficient Data

BIAS



Over-Forecast (bias>1.2)

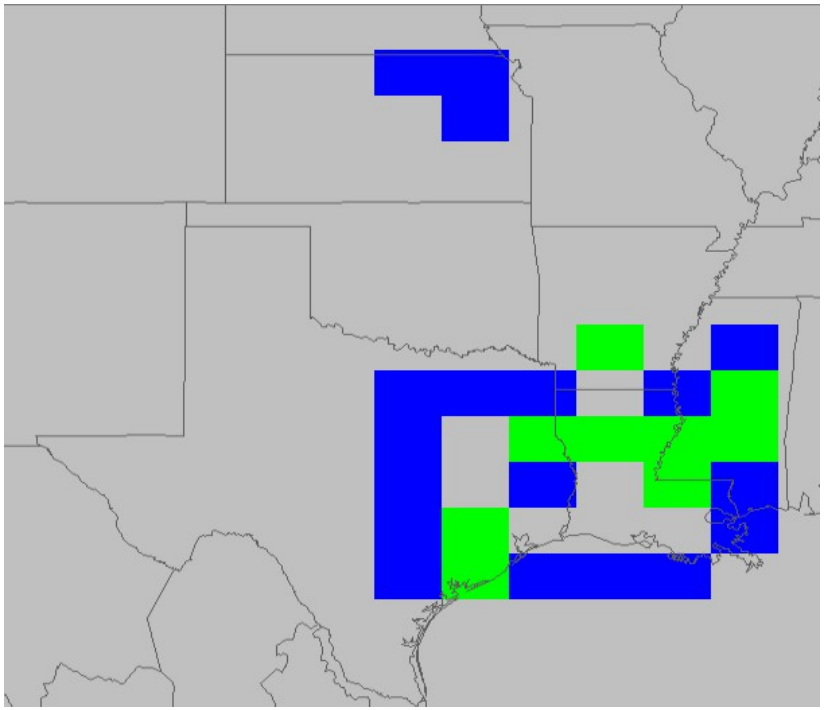
No Significant Bias (.8<bias<1.2)

Under-Forecast (bias< .8)

Insufficient Data

TSTMS 48 Hr Forecast

HEIDKE SKILL SCORE



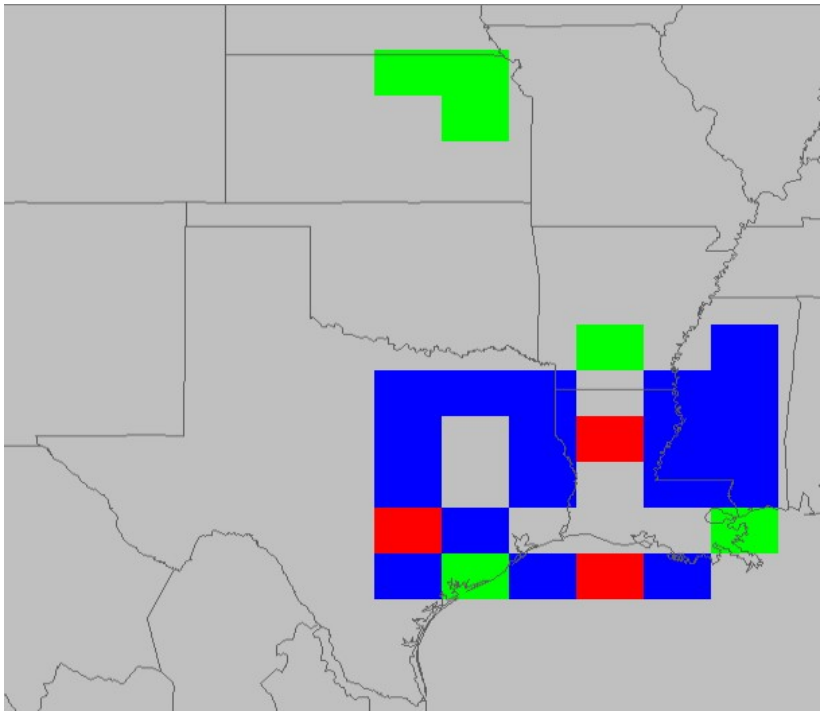
Strong Skill (hss>.5)

Weak to Moderate Skill (0<hss<.5)

No Skill (hss< 0)

Insufficient Data

BIAS



Over-Forecast (bias>1.2)

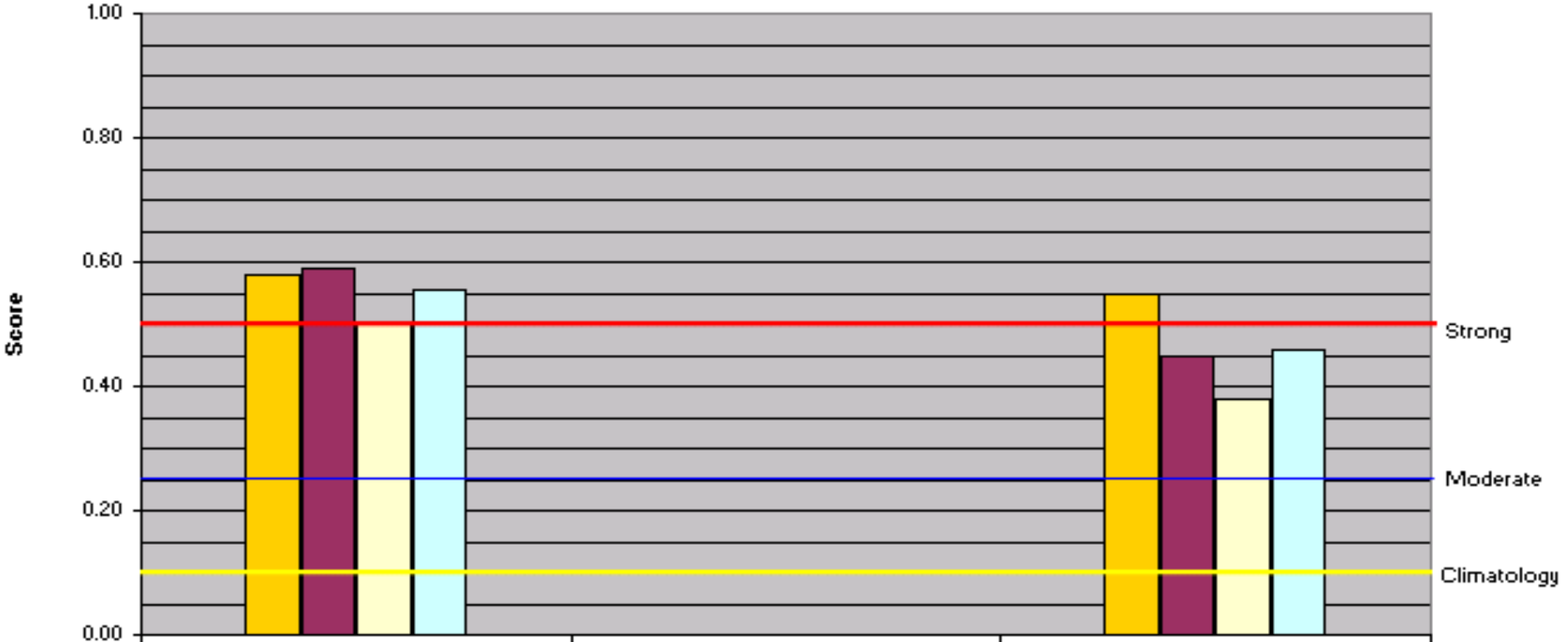
No Significant Bias (.8<bias<1.2)

Under-Forecast (bias< .8)

Insufficient Data

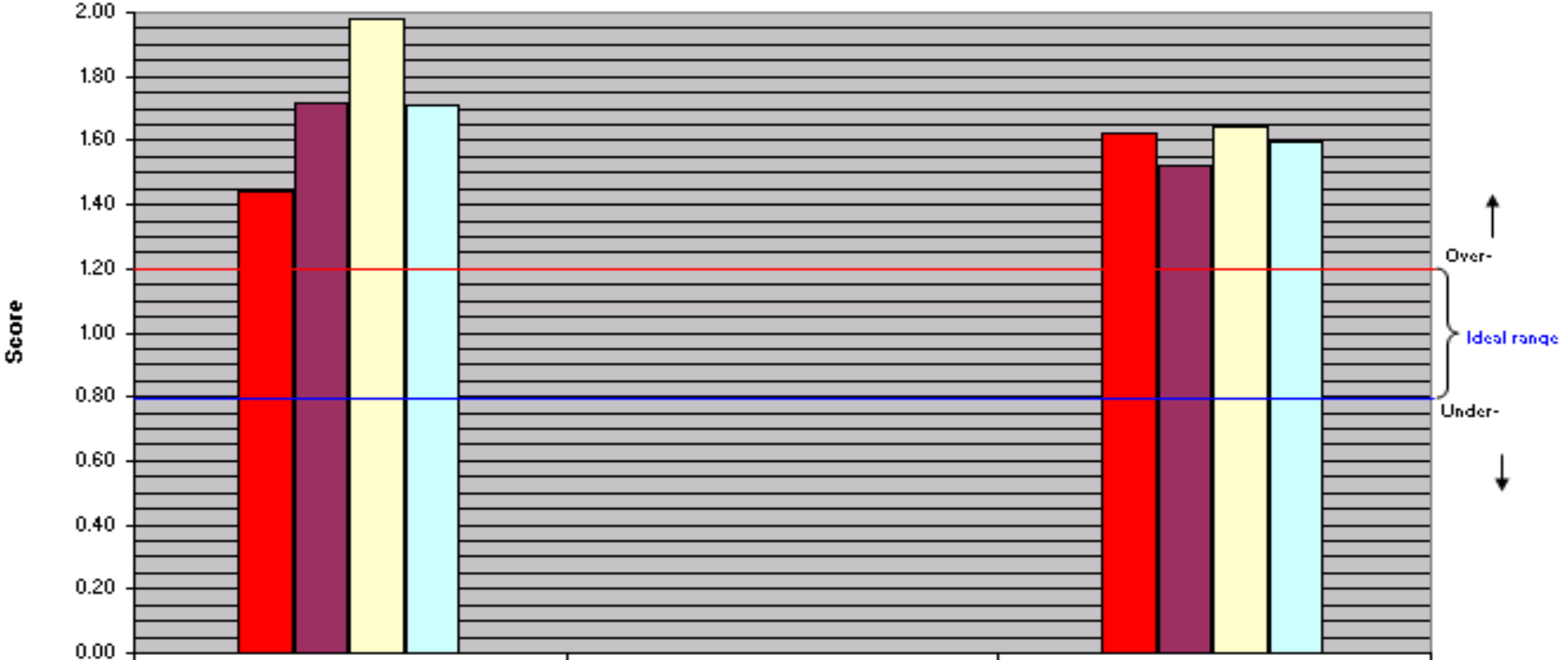
Numerical Output

Feb 04 HSS



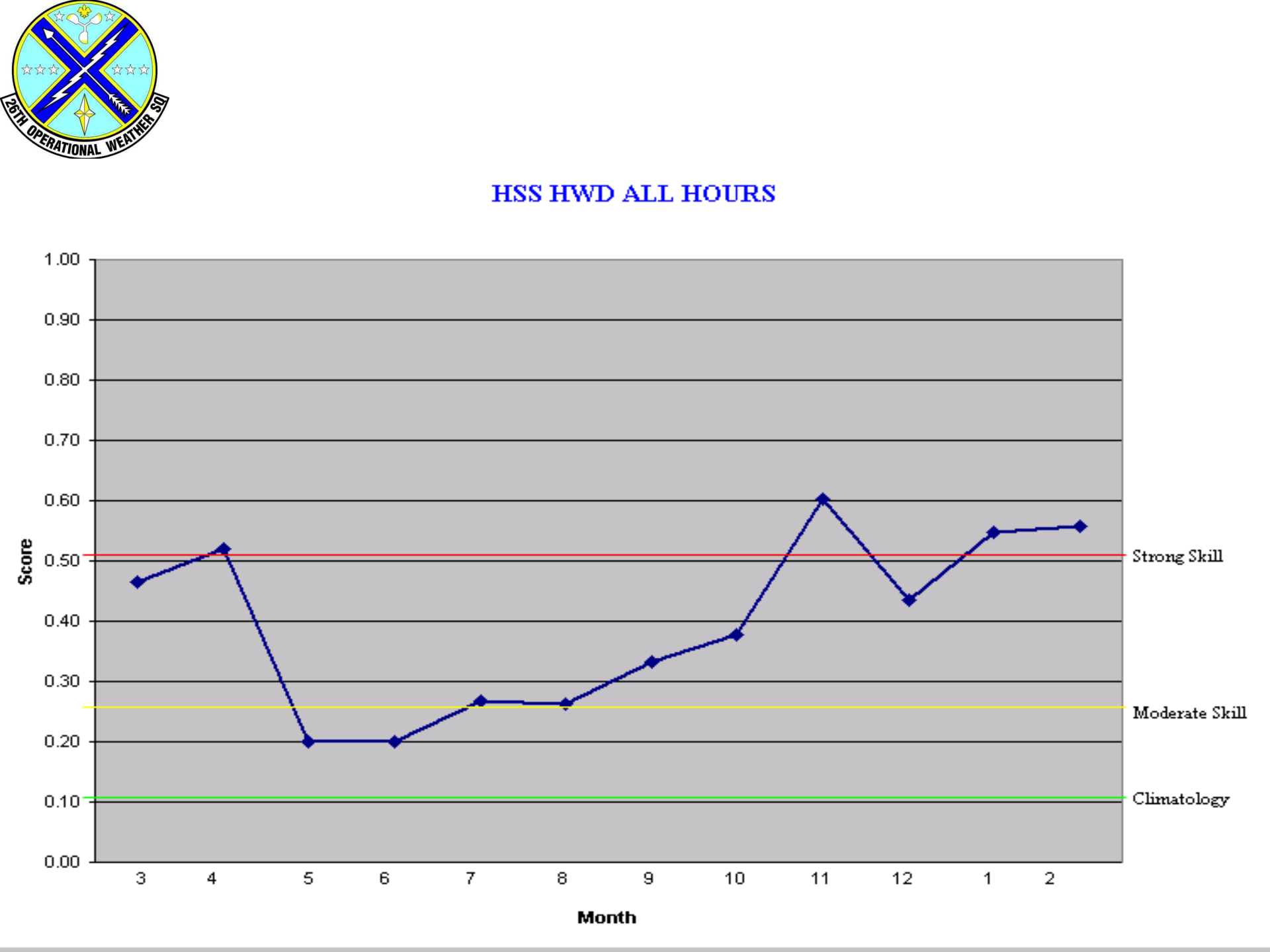
	HWD		TSTMS
12 HR	0.58		0.55
24 HR	0.59		0.45
48 HR	0.50		0.38
AVG	0.56		0.46

Feb 04 BIAS

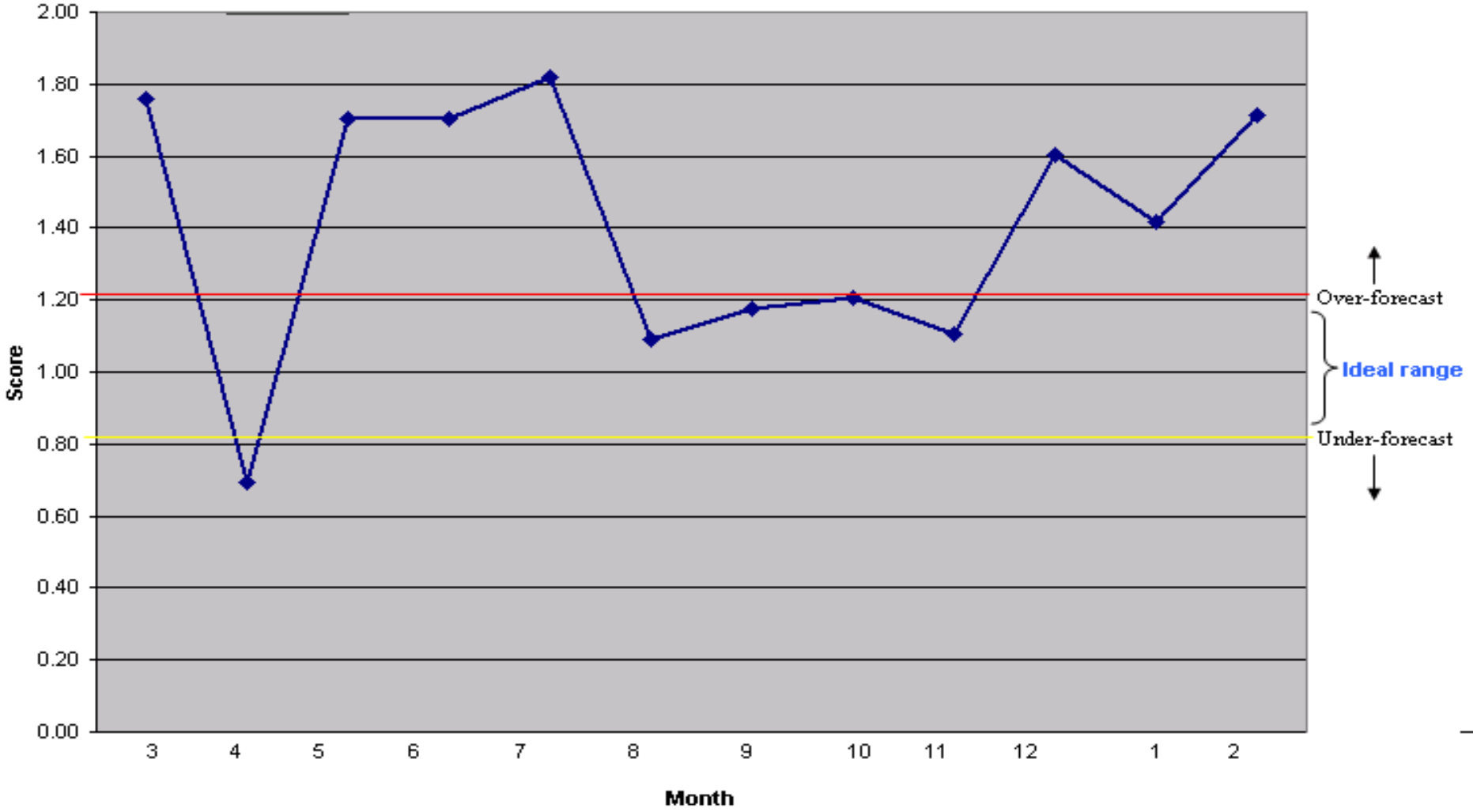


	HWD		TSTM
12 HR	1.44		1.62
24 HR	1.72		1.52
48 HR	1.98		1.64
AVG	1.71		1.59

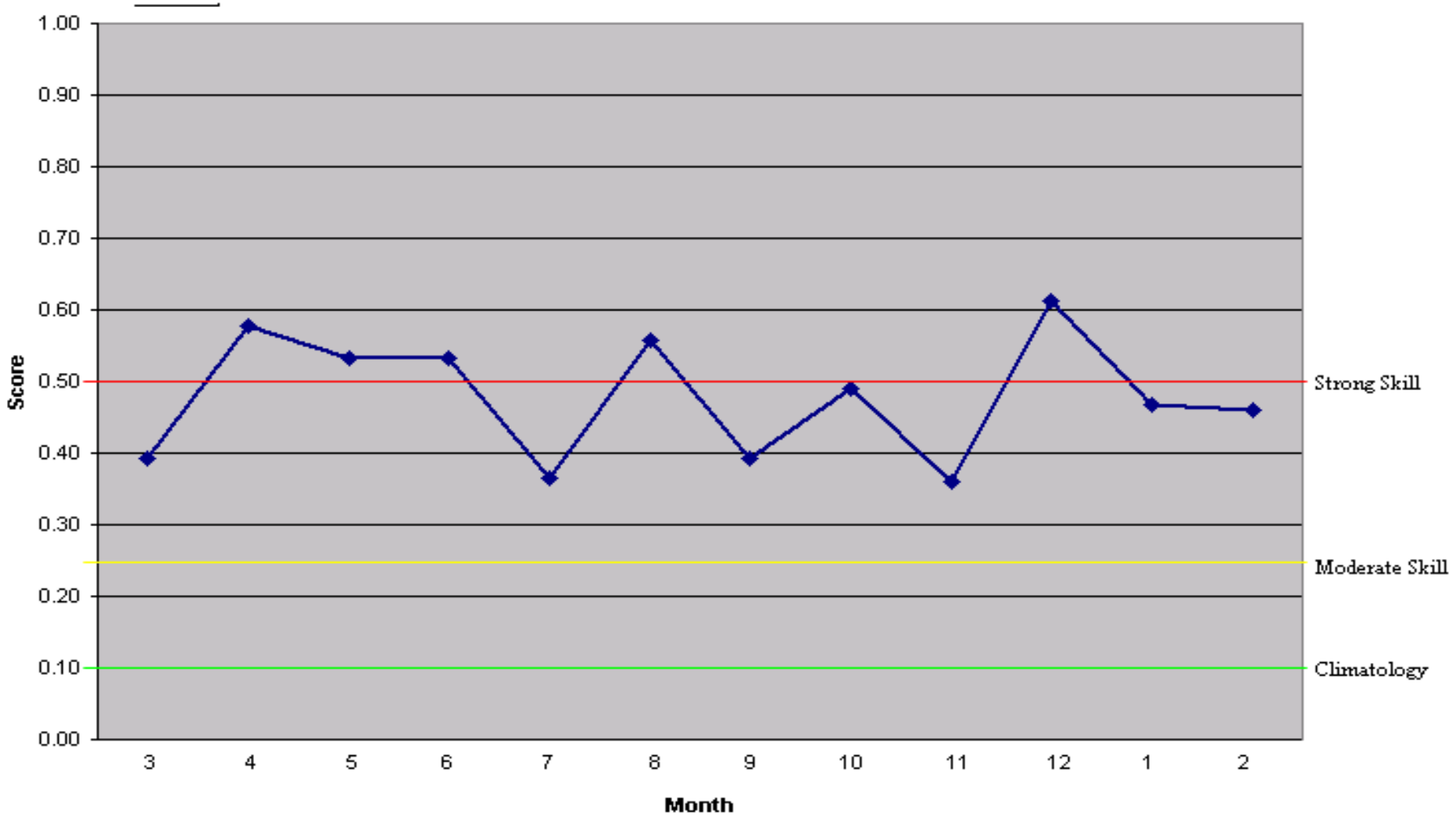
Graphics Trends


HSS HWD ALL HOURS
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
Score
3
4
5
6
7
8
9
10
11
12
1
2
Month
Strong Skill
Moderate Skill
Climatology

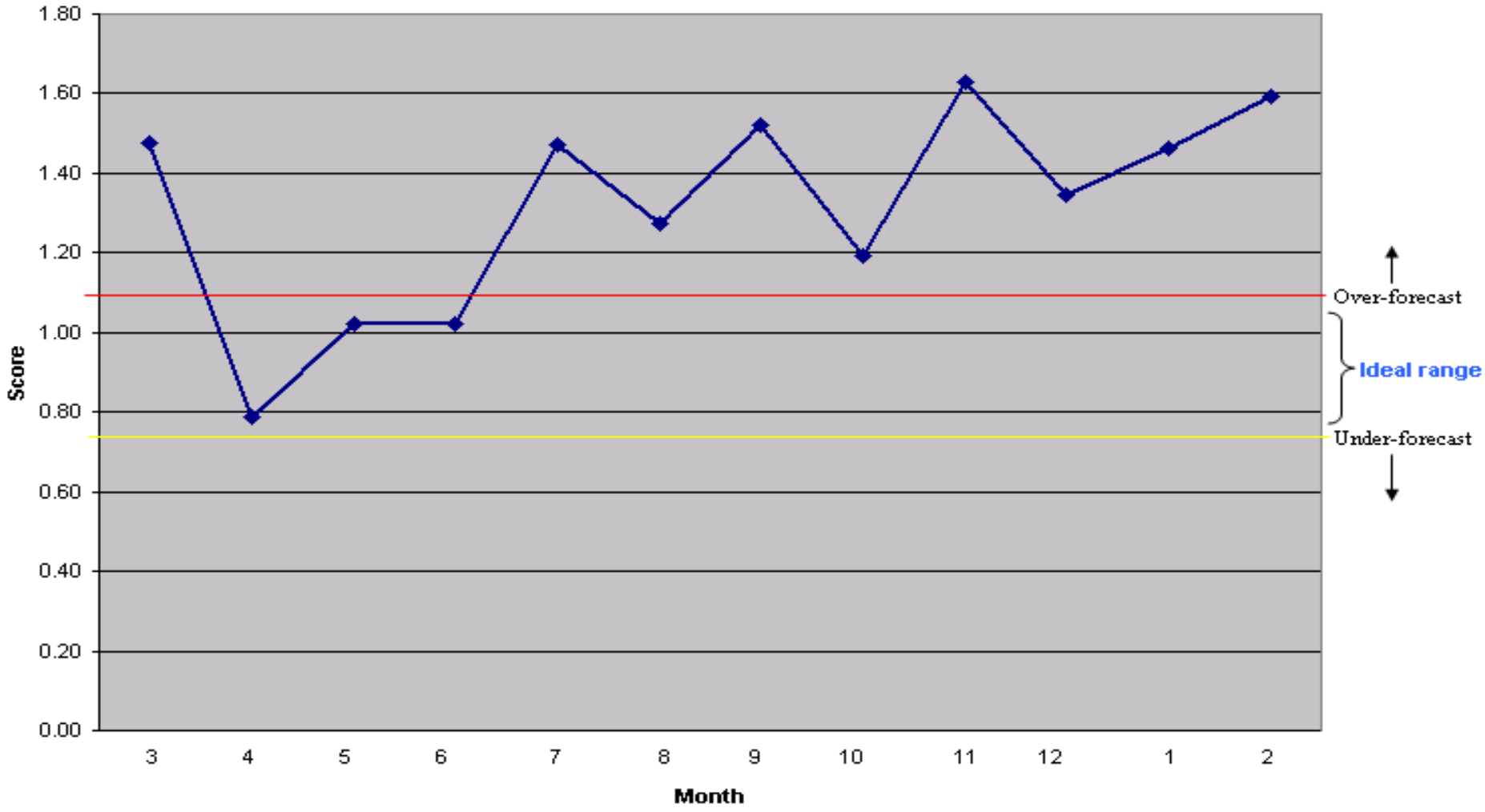
BIAS HWD ALL HOURS



HSS TSTM ALL HOURS



BIAS TSTM ALL HOURS



Review

- **HWD –** Still maintaining a strong overall skill but also an over-forecasting bias. Need to work on refining our forecast areas and not generalizing. The tools work well most of the time but we're not interpreting them correctly.

- TSTMS – Had a high moderate skill overall but like HWD we are over-forecasting. Again proper interpretation of the tools will help. Although some of the bias is due to the method of verification and some is due to fusion (grouping areas to make the stitching easier for other OWS').